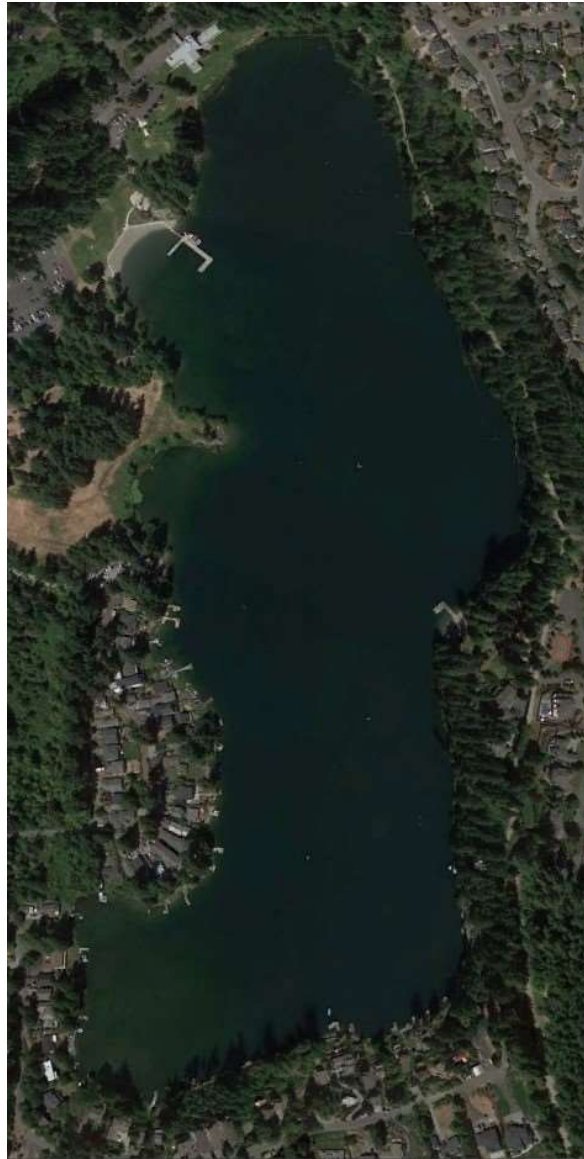


LAKE WILDERNESS – SPRING SURVEY 2022



5/3/2022

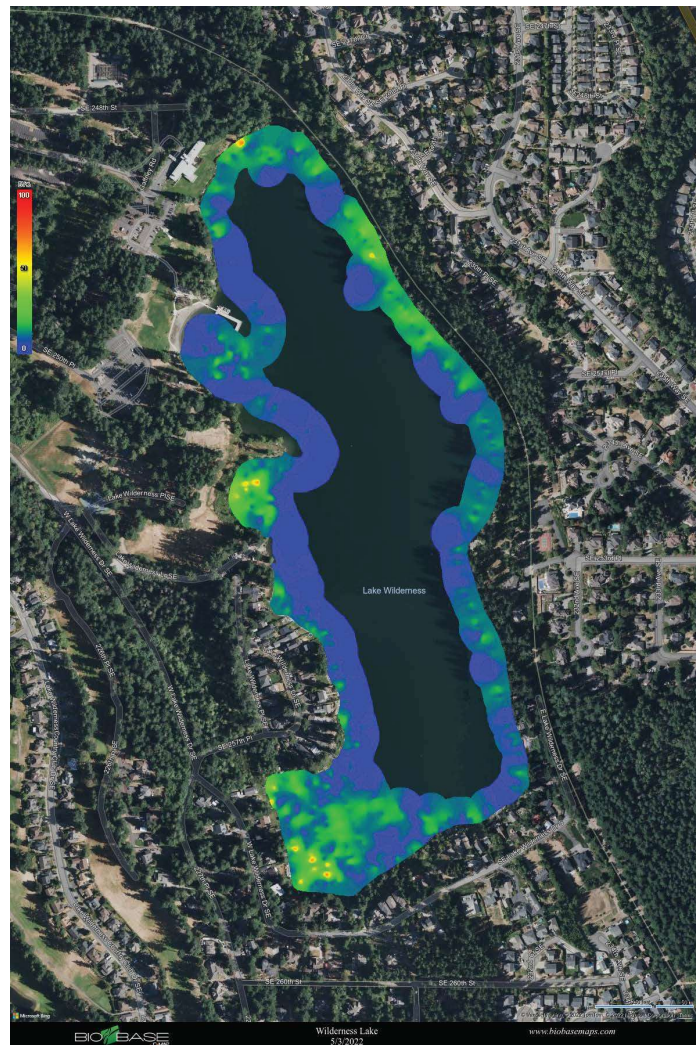
Prepared by AquaTechnex, LLC.

Introduction

Aquatechnex is contracted to support the City of Maple Valley and the Lake Wilderness Community in managing aquatic plants and algae in Lake Wilderness. This work consists of surveys to map aquatic plant communities present with a focus on invasive species and treatments as directed to deal with problem aquatic plant and algae growth.

Spring Survey

Aquatechnex biologist mobilized to Lake Wilderness on May 3, 2022 and performed a hydroacoustic survey to locate aquatic vegetation present and to identify species present within those communities. Special attention is given to reviewing the littoral areas of the lake for Eurasian Milfoil and other invasive aquatic weeds that could be introduced.



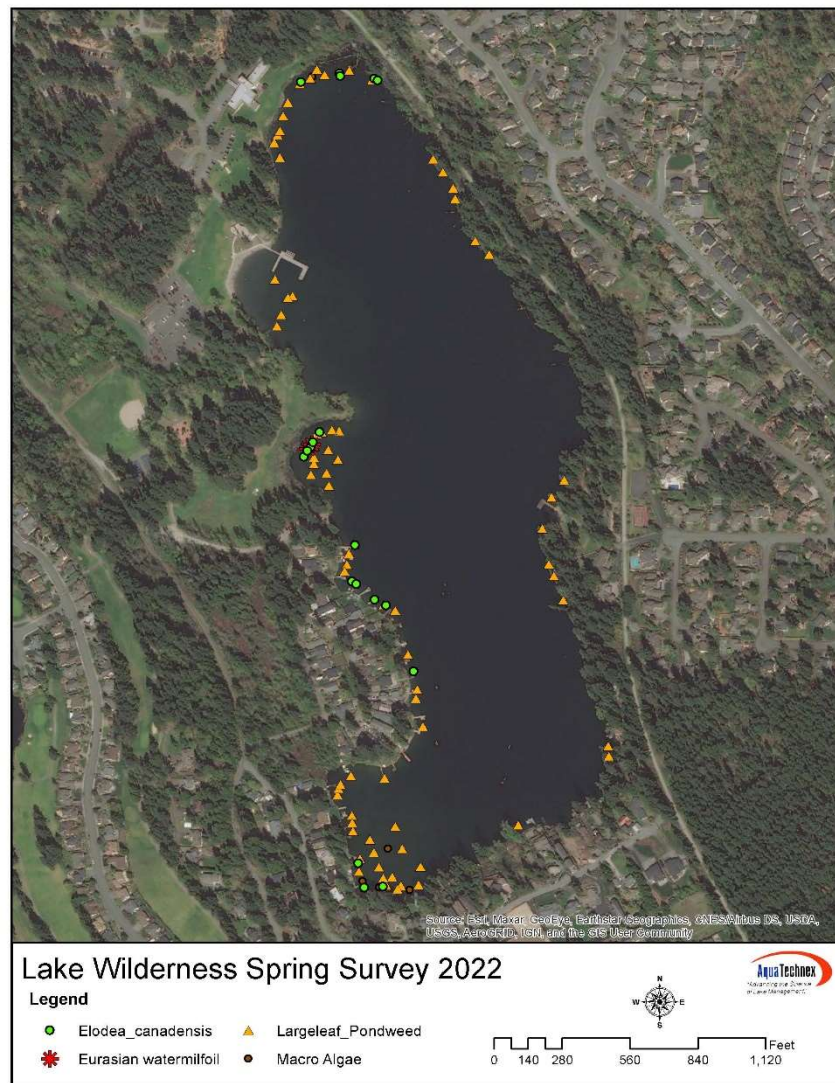
This HEAT map was produced by our mapping software from the hydroacoustic survey of the lake. The Color Ramp on the left of the image represents the percent of the water column occupied with submerged aquatic vegetation or SAV. Blue indicates zero percent of the water column has SAV present and Red represents the other end of the scale where 100 percent of the water column has SAV present.

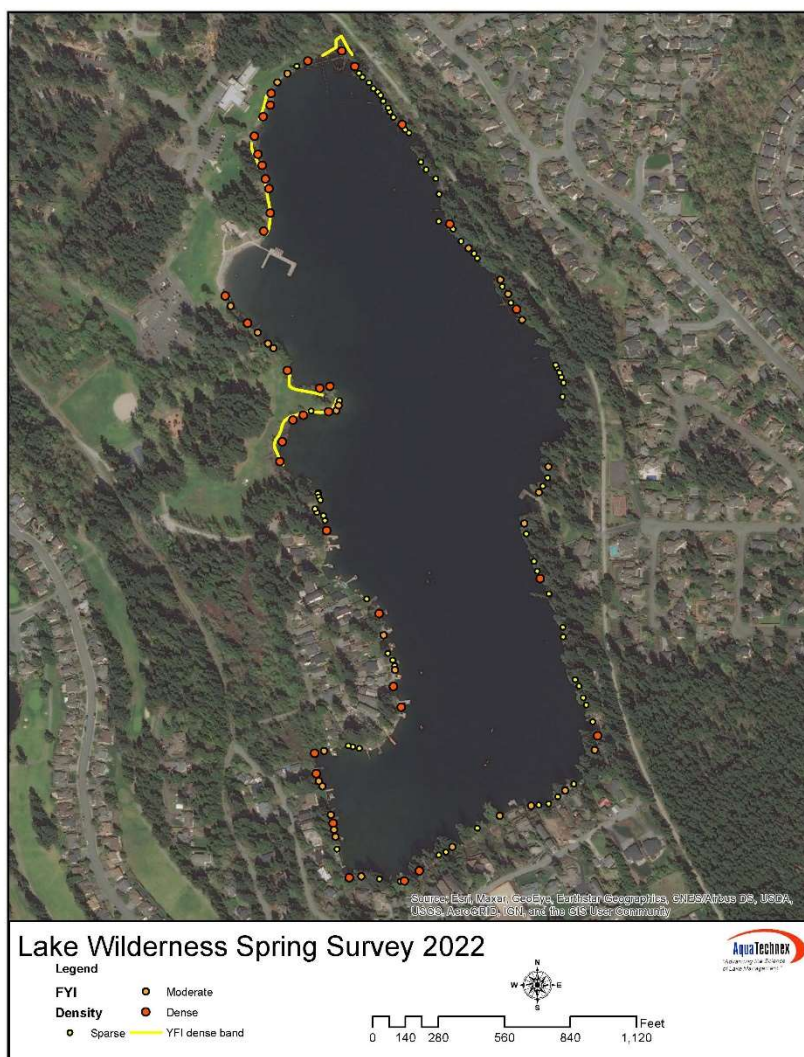
Lake Wilderness Spring Survey 2022

This report can be viewed at this link as well <https://noxreportprod.s3.amazonaws.com/00594bfc-b3c1-4398-b370-94d0b576f8f3/Report.html>

The general areas where we do aquatic weed control around the beach and in the southwest bay are exhibiting minimal growth. This year's submerged aquatic plant growth appears to be late. Delayed germination of plants is likely attributed to the extended cold and gray period into this spring. Lake surface temperature at time of survey was 55 degrees.

The biologist also used a Trimble TDC600 submeter data logger to record species present. The species detected are shown and discussed on the following maps and pages.





Results

Lake Wilderness is a lake with a satisfactory level of biodiversity. Upon the completion of the survey, invasive Eurasian watermilfoil (*Myriophyllum spicatum*) was found at one location in Lake Wilderness. In addition, noxious weed Yellow Flag Iris (*Iris pseudacorus*) is located sporadically around the entire lake margin with varying densities. The densest areas are around park and northwest shoreline, marked on the map by the yellow lines. In the state of Washington, Yellow Flag Iris is a Class C noxious weed, meaning that the state does not require its removal, however, it still has an impact on the native flora and fauna that use the lake. This species can also cause skin irritation if you get the sap it produces on your skin.

The most dominate species within the lake at the time of survey was Largeleaf Pondweed (*Potamogeton amplifolius*). Largeleaf Pondweed is a native species that can be a nuisance due to the height and biomass it can achieve during the summer months. However, this species provides excellent habitat for the aquatic species that are present throughout the lake. Current state of growth in the lake is minimal. However, once mature this plant will become problematic in the typically areas that receive control in

the southwestern bay and near the swim beach. Other species that were observed in lower abundances were *Chara* sp., and Common Water Weed (*Elodea canadensis*).

Recommendations for 2022

The Department of Ecology and Department of Fish and Wildlife have approved the treatment timing window of “Year-Round, As Needed” for lake Wilderness. Again, at time of survey plants were minimal and fewer plant species were noted. SAV will increase over the next few weeks as will diversity. It should be assumed the normal troubled areas will reach nuisance level this season. The vegetation heat map and species map show presence of plants, but currently at low biovolume. SAV growth in the Southwest Bay and within the city beach will continue to mature and pose a threat to recreational users.

For the 2022 season we currently recommend focusing on 2.0 acres near the beach area, 7 acres of area from the shoreline south of the boat ramp and into the southwest bay and the southern shoreline. These 9 acres will reach growth densities to warrant control this season. A combination of Littora and Aquathol K herbicides is recommended in these zones to control the Pondweed and Elodea.

Within the shallow bay just north of the public access three (3) Eurasians Milfoil (*Myriophyllum spicatum*) plants were located. Any Eurasian Milfoil plants found within Lake Wilderness must be controlled. Treating Eurasian Watermilfoil with ProcellaCor EC is the recommended best option. One acre of this bay should receive control this spring.



The remaining shoreline areas have patchy SAV present as mapped, but minimal to no impact is likely to occur on beneficial uses this season.

Yellow Flag Iris is slowly colonizing the Lake Wilderness shoreline. Yellow Flag Iris is on the state's noxious weed list and should be considered for control. Private residences/properties with small pioneering plants should consider manually removing their plants themselves. Other areas around the lake with large stands of monoculture iris should be reviewed for strategic control and reduction over the next several years. The goal here would be to limit annual impacts of large-scale control and allow native vegetation to replace controlled areas while continuing to selectively control the iris until eradicated from the lake or at a sustainable control level.

Algae and Cyanobacteria blooms are a continual risk at Lake Wilderness. We recommend a proactive approach to limit algal and cyano growth by reducing the available phosphorus in the lake. A Lanthanum based product like EutroSORB will permanently remove the algae's main food source, phosphorous, within the lake and lock it away. This removal will prevent or prolong the time in between blooms depending on how quick the lake reloads with nutrients from external sources after the application has been concluded. The application would need to occur in the earlier spring or fall before a bloom was to occur. If EutroSORB is not chosen, we recommend utilizing PAK27 to mitigate blooms should they occur and continuing to monitor the nutrient and chlorophyll levels in the lake to stay ahead of potential major blooms.